

Promotor in the Air

roomy for the size of aircraft so far produced, and it reminded me in some ways of the S.51 helicopter. The "chauffeur" sits in a forward seat on his own, and the passengers have a wide three-abreast lounge seat behind him. A central arm folds down if only two passengers are carried. Beside the pilot and forward into the nose is a large expanse of clear floor space which extends across the main entrance door. A folding step is provided, and one can walk in and out of the door almost as if one were entering or leaving a coach.

The whole nose of the aircraft hinges upwards to reveal the nosewheel attachments and retracting mechanism, also the pedals, brakes and hydraulic system. In addition, it reveals a second entry to the cabin sufficiently large for the introduction of a stretcher patient.

Since the prototype appeared at the end of 1946 several alterations have been made as a result of experience on development flights. Differences in fin and rudder shape are apparent, and parts of the engine installation and cowlings have been modified. It had been hoped that an extension shaft to the pusher airscrew could be avoided, and to overcome airflow problems anticipated around the abrupt termination of the nacelle, cooling and exhaust air were fed out through louvres into the air stream over the critical areas. Even so, the airflow was unsatisfactory and a considerable loss of performance was attributed to it. As a result, production Promotors, of which five of the initial batch have been completed, have elongated, more shapely nacelles, and the airscrew is driven through a short extension shaft. Cooling air enters through a scoop integral with the top nacelle panel, and after passing over the cylinders it is exhausted through horizontal louvres somewhat similar to those on the prototype.

The Promotor is predominantly of wooden construction but there are certain metal units. The one-piece ply-covered mainplane is all of wood except for the tip units which are of light alloy. The ailerons are also wooden structures but the hydraulically operated landing flaps are light-metal units. The fuselage is of wooden construction with the exception of the metal nose and the engine nacelle. Fireproof materials are used for cabin trimming and upholstery. The twin tail booms and integral fins are all metal, but the tailplane and elevator spanning them are of wood.

A welded steel tubular mounting structure supports the Lycoming engine, which is fitted with an automatically-variable-pitch Aeromatic airscrew. The 45-gallon Goodyear Pliocel fuel tank is in the centre section between wing spars.

The accessibility of the 190 h.p. flat six Lycoming is one of the talking points of the aircraft. The large upper panel of the nacelle, in which is formed the cooling air scoop, is hinged at its front end and opens wide to give access to the whole upper portion of the engine and its mounting. The two main side panels also open to reveal a large compartment into which projects from the top the lower portion of the engine, its accessories, controls, pipes, etc. The engine compartment is divided by a horizontal diaphragm or deck, just below the centre line of the cylinder heads. The only way in which cooling air entering the upper

chamber can pass into the lower and out through the louvres is between the cylinders and through their cooling fins.

Although no extractor fan is fitted with this new engine installation, cooling has proved to be very satisfactory. Temperatures very seldom exceed 230 deg C at maximum reading, while the engine manufacturer's limitation is 260 deg. Prolonged taxiing down wind on heavy ground is the only occasion when cooling needs to be watched carefully.

A Dowty nosewheel undercarriage is fitted and provides one of the first examples of liquid springing fitted to a light aircraft. The legs are short, and the aircraft is, therefore, near to the ground. This, together with the wide track, makes for unusually good stability on the ground. The nosewheel is steerable through the rudder pedals, and may be connected or disconnected at will.

The Promotor's visit and our flight from Langley airfield was made possible by the co-operation of Dowty Equipment, Ltd., makers of the undercarriage, and the Hawker company.

Into the Air

The first thing that impressed me on starting up was the quietness of the engine and the lack of vibration. For a moment I was not sure if, in fact, the engine was running.

No aircraft could be simpler to taxi than a Promotor; the engine can be set at a fast idling speed on the tarmac, the parking brake released, and with control wheel still locked the aircraft can be manoeuvred with precision by the use of the steerable nosewheel and a touch of toe brake when particularly sharp turns are desired. The c.g. feels much lower than one would expect, and there is no tendency whatever to heel over, even when sharp turns are made at a fast speed for taxiing. The pilot's field of vision is excellent. In view of the car-like handleability of the Promotor when on the ground, the provision of a button to sound the warning horn as an indication of one's approach is a practical feature.

The Promotor's cockpit and interior equipment definitely comes into the "lavish" category. In the centre is a full blind-flying panel, similar to the R.A.F. standard panel in every detail but the type of artificial horizon. Above it is mounted an electric master compass. On the right of this panel is another on which are mounted fuel, suction and engine temperature and pressure gauges, an ammeter and a clock, together with ignition, starting and other electrical switches. Above the wheel, of the push/pull type, is the engine r.p.m. indicator, while below it are the undercarriage and flap controls. To the left are indicator lights and the radio.

Beside the pilot on the left-hand side is a control pedestal which at first sight appears rather complicated but is, in fact, simply a grouping of power controls, trimmers, fuel cock,

Not only is the cabin exceptionally roomy but passengers can step into it like a taxi with the pilot at his controls and engine running. On the right is the open nose-hatch for loading a stretcher case. It also gives access to the nose-wheel, brakes and hydraulic system.

